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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,340	07/28/2006	Markus Bill	49801	6519
1609 7590 12/11/2009 ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P. 1300 19TH STREET, N.W. SUITE 600 WASHINGTON,, DC 20036				
EXAMINER				
BASKIN, JEREMY S				
ART UNIT		PAPER NUMBER		
3753				
MAIL DATE		DELIVERY MODE		
12/11/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/556,340

**Applicant(s)**

BILL ET AL.

**Examiner**

Jeremy S. Baskin

**Art Unit**

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the subject matter of Claim 20 involving a pressure compensator forming an adjustable metering orifice of a flow regulator must be shown or the feature(s) canceled from the claim(s). Furthermore, the drawings appear to be a copied from a PCT publication and contain informal page headers. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regard to Claim 11, line 7, and Claim 20, lines 8-9, the limitation "said control piston" lacks antecedent basis and should probably read "said pilot piston".

In regard to Claim 14, line 3, the claim recites where an additional compression spring biases the pilot piston towards an open position of the pilot piston. However, this teaching is inconsistent with the specification and drawings. The additional compression spring 66 appears to bias the pilot piston 24 to a closed position in abutment with the pole tube 36.

Claims 12, 13, 15-19, and 21-28 are rejected as being dependent upon an indefinite claim.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11-15, 18, and 19 are rejected, as understood, under 35 U.S.C. 103(a) as being unpatentable over Kolchinsky (5,072,752) in view of Scheffel et al. (5,865,213).

In regard to Claims 11-14, and 18, Kolchinsky teaches, in Figure 2, a valve 20 having a valve housing 22, three fluid ports 34, 38, 102, a main piston 40, and a pilot piston 76. An

electromagnet 122 actuates the pilot piston to an open position to allow fluid to flow between the first port 34 to the second port 38. The electromagnet has an armature 96, a coil 122, and a pole tube 98. The armature is moved into the pole tube when the coil is supplied with current (col. 5, lines 55-60). When a pilot control 82 of the pilot piston is opened off of its corresponding seat 70, fluid flows through a cross-sectional constriction orifice 44 into a pilot chamber 72 where it is drained out of the third port 102. The resulting pressure drop causes the main piston to actuate the two fluid ports 34, 38 in terms of the amount of fluid pressure present at port 38 (cols. 5-6, lines 55-13). A compression spring 66 is disposed between the main piston and the pilot piston and is received in a recess 64 of the main piston. The cross-sectional constriction 44 with selector valve 52 discharges into the recess. A contact piece 68 is on a free end of the compression spring adjacent to the pilot piston and is connected to a free end of the pilot piston via a contact 82. A second compression spring 81 biases the pilot piston towards the open position. Kolchinsky fails to specifically teach where the contact piece is connected to the free end of the pilot piston by a contact ball.

Scheffel discloses a pilot operated solenoid valve. Scheffel teaches where a contact piece 16 is connected to a free end of the pilot piston 12 by a contact ball 14. The contact ball is received in a conical recess in the contact piece and extends only partially into the contact piece.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Kolchinsky, a contact ball for the contact on the free end of the pilot valve, as taught by Scheffel, as an equivalent means of forming a sealed surface between the contact piece and free end of the pilot piston. The contact ball also provides a fluid dynamic surface for

oncoming flow. It further would have been obvious to incorporate, in Kolchinsky, a conical recess on the contact piece, as taught by Scheffel, to suitably receive the contact ball.

In regard to Claims 15, Kolchinsky teaches where the pilot control is formed as a gate valve at a closing and sealing free end 82. The free end is cylindrical and is longitudinally movable in a recess 86 of the valve housing.

In regard to Claim 19, Kolchinsky teaches where the contact piece 68 is inherently movably mounted within the recess 86 of the valve housing so as to install the contact piece within the valve body and to create a desired size of fluid control chamber 108. As such, the contact piece possesses annular side openings similar to those disposed on the outer surface of the main piston at 35. The contact piece is biased against the valve housing and pilot piston via the compression springs 66 and 81.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kolchinsky in view of Scheffel in further view of Kramer et al. (4,799,645).

In regard to Claim 17, Kolchinsky in view of Scheffel teach the limitations as discussed in the rejections of Claims 11-15, 18, and 19 above, but fail to specifically teach where additional sealing parts of a sealing system are on an outer circumference of the pilot piston.

Kramer discloses a pilot operated solenoid valve. Kramer teaches where seals (below 74) are disposed on the outer circumference of the pilot piston 60, 74.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Kolchinsky, seals around the outer circumference of the pilot piston, as taught by Kramer, so as to prevent undesired fluid flow around portions of the pilot piston.

7. Claims 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolchinsky in view of Scheffel as applied to Claims 11-15, 18, and 19 above, and further in view of Wilke et al. (6,073,652).

In regard to Claim 20, Kolchinsky in view of Scheffel teach the limitations as discussed in the rejections of Claims 11-15, 18, and 19 above, but fail to specifically teach where a pressure compensator is coupled to the valve forming an adjustable metering orifice of a flow regulator.

Wilke discloses a pilot operated solenoid valve. Wilke teaches a pressure compensator 60 in conjunction with the supply valve 10. The pressure compensator forms an adjustable metering orifice at 76.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Kolchinsky in view of Scheffel, a pressure compensator in conjunction with the main valve, as taught by Wilke, so as to provide the greatest pressure to a control input from multiple pressure workports.

Kolchinsky in view of Scheffel teach the limitations of Claims 21-25, 27, and 28 as per the rejections of Claims 11-15, 18, and 19 above.

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kolchinsky in view of Scheffel in further view of Wilke as applied to Claim 20 above, and further in view of Kramer.

Kolchinsky in view of Scheffel in further view of Wilke teach the limitations as discussed in the rejection of Claim 20 above, but fail to specifically teach where additional sealing parts of a sealing system are on an outer circumference of the pilot piston.

Kramer discloses a pilot operated solenoid valve. Kramer teaches where seals (below 74) are disposed on the outer circumference of the pilot piston 60, 74.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate, in Kolchinsky, seals around the outer circumference of the pilot piston, as taught by Kramer, so as to prevent undesired fluid flow around portions of the pilot piston.

***Allowable Subject Matter***

9. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

10. Applicant's arguments with respect to Claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schexnayder (5,421,545) discloses a pilot operated poppet valve with spring contact piece.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy S. Baskin whose telephone number is (571) 270-7421. The examiner can normally be reached on Monday through Friday, 7:30AM to 5:00PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEPHEN HEPERLE/  
Primary Examiner, Art Unit 3753

/J. S. B./  
Examiner, Art Unit 3753